GAME BOARD AND GAME ELEMENT WITH DETECTING MEANS

The invention relates to a method of playing a game by means of a game element.

The present invention also relates to a computer system for performing the method.

The present invention further relates to a computer program product for performing the method.

The invention further relates to a game element for playing a game.

The invention further relates to a game board for playing a game.

WO 97/13563 discloses a board game comprising playing pieces and a board. The playing pieces can interact with the board by means of transmission of light, electromagnetic induction, by ultrasound or by electrical contact. A playing piece may receive predetermined information from the board. Said information can subsequently be displayed on the playing pieces.

However, the above prior art method involves the problem that only certain predetermined information, such as color, brightness, intensity of light, fixed textual information, etc. can be displayed on a playing piece.

It is a problem that static characteristics of board games often have as a result that game content and playing pieces can typically be used only for one specific game. The game elements that come with a lot of board games are fixed physical objects dedicated to a predetermined kind of game and require the users to acquire new game elements when they wish to add functionality or new game elements to the game. It is a further problem that game elements are typically bound to few, fixed games.

It is therefore an object of the present invention to provide a game element and a game board with presented information reflecting the kind of said game element in a particular game.

The above and other problems are solved by said method, wherein the method comprises the steps of:

- placing the game element on a first location relative to a game board;
- determining, by the game board, the first location of the game element;
- determining, by the game board, a first information item representing game content, wherein said first information item is dependent on said location and a first game being played;
- transferring, by the game board, the first information item to the game element; and
- receiving and presenting said first information item on the game element.

In the first step, it is possible for the user to position the game element to any desirable location relative to a game board.

In the second step, the game board may find out that a game element is placed relative to it, and subsequently the game board may then locate the game element.

In the third step, said first information item is made dependent on the location of the game element and a game being played on the game board.

Said first information item may comprise plain text, pictures, frames, video, word-processor data, spread-sheet data, game figures, game elements, text or picture messages, or any combination thereof. This may reflect which game is played and the location and or status of the game's game element or elements.

In the fourth step, said information is then transferred to the game element.

Finally, the information is received by the game element and is then presented, i.e. displayed and / or played back, if possible.

By means of the these steps, the problem of game elements as fixed physical objects dedicated to a predetermined kind of game is solved because information presented on said game element specifies its kind. The game element is therefore no longer a fixed object because information presented on it modifies its appearance.

The object of providing the game element with presented information reflecting the kind of game is further achieved, because the presented information may be dependent of a game selected.

It is an advantage of the invention that new game elements may be added to the game (without new elements actually being bought) because modified information presented on said game elements may modify their kind and appearance.

Furthermore, functionality is added to the game, because the game elements may have dependent information presented to them during a game when their locations in the game are changed.

It is a further advantage that the game elements may be used as other kinds in different games when their kind and appearance are modified by modified information transmitted to them.

In a preferred embodiment of the invention, the step of determining the first location of the game element comprises the steps of:

- transmitting, by at least one transmitter located on the game element, at least one signal identifying said game element;
- receiving, by at least one sensor located on the game board, at least one identifying signal; and
- determining, by the game board, the first location based on at least one identifying signal.

In the first of these steps, one or more transmitters positioned on or integrated in the game element is /are used to identify it to the game board, because said signal or signals is / are currently transmitted from the game element.

Consequently, in the second of the above-mentioned steps, said signal or signals is / are received by a sensor or sensors located on the game board.

Finally, by means of said signal or signals, the game board may locate coordinates for the game element.

In a preferred embodiment of the invention, the method further comprises the steps of:

- removing the game element from the first location; and
- placing the game element in a second location relative to the game board.

It is a further advantage that functionality is added to the game itself because information presented on said game element may depend on where the game elements are located and how they are moved around.

In a preferred embodiment of the invention, the method further comprises the step of:

- receiving a second information item representing a second game being played.

It is a further advantage that the user or player may have new content presented on the game element reflecting a selected new game, i.e. said second game.

The above and other problems are further solved by a game element for playing a game, said game element comprising:

- means for placing it on a first location relative to a game board;
- means for transmitting, by at least one transmitter located on the game element, at least one signal identifying said game element; and

- means for receiving and means for presenting a first information item representing game content, wherein said first information item is dependent on said first location and a first game being played, and wherein said first information is sent from the game board.

Said problems are further solved by a game board for playing a game, wherein said game board comprises:

- means for determining a first location of a game element;
- means for determining a first information item representing game content, wherein said first information item is dependent on said first location and a first game being played; and
- means for transferring the first information item to the game element.

In a preferred embodiment of the invention, the means for determining a first location of a game element comprises:

- means for receiving, from at least one sensor located on the game board, at least one identifying signal; and
- means for determining the first location based on at least one identifying signal.

The game element and the game board, respectively, give the same advantages for the same reasons as described previously in relation to the method.

The invention will be explained more fully below in connection with preferred embodiments and with reference to the drawings, in which:

Fig. 1 shows a game element and a game board;

Fig. 2 shows a physical implementation of the game element;

Fig. 3 shows various configurations of a game element;

Fig. 4 shows various placements of various configurations of game elements on a game board; and

Fig. 5 shows a method of playing a game by means of a game element.

Throughout the drawings, the same reference numerals indicate similar or corresponding features, functions, etc.

Fig. 1 shows a game element and a game board sharing the same figure. However, mainly the game element will be described by means of its features and then the game board will be described on the basis of the features of the game element.

The game element 10 has a front 11. Before said front, a player or a user - denoted by reference numeral 18 - may obtain information from the game element's display

13, and / or from a loudspeaker 15, each positioned on the front. Said information may be displayed on the display and said information, when it comprises sounds or music, may optionally or additionally be emitted by means of the loudspeaker 15 or on a like device. The game element may be used as an element in a game or in a simulated played sports event, it may be operated in conjunction with other game elements, which may thereby provide the player with game-related information displayed and or / played back by means of said game elements. Accordingly, the game element may be used in conjunction with other units of the same kind as playing elements in a game on or relative to a game board, as will be discussed in Figure 4. On the game element or integrated in the game element one or more transmitters 12 may be positioned.

This or these transmitter(s) may then be used to inform the game board that said game element is used in a game. The transmitter may be any sensor capable of transmitting a signal as known in the prior art, such as a signal of light, an infrared signal, etc. Furthermore, said signal may be used to identify the game element and its type. By means of said transmitters, the location of the game element relative to the game board and or relative to other game elements may be determined. When the location of the game element(s) is known, game information – reflecting said location - may subsequently be transferred from the game board to the game element(s) for a subsequent presentation.

Said game information may be plain text, pictures, frames, video, word-processor data, game figures, game elements, text or picture messages, and combinations thereof.

The player may respond to said game information given by means of an input device - still referring to the game element - as denoted by reference numeral 14. As an example, before or during a particular game said player may wish to change from one game being played to another game to be played subsequently. Accordingly, game board and game element(s) may then present different information reflecting the new game being played or about to be played.

The input device may be a keyboard, some other pushbutton and / or fields sensitive to touch on said display. The input device may further be a button and / or an arrangement of buttons, a pointing device, such as a mouse, a trackball, a touch pad, a digital pen, or the like.

Said information may - by means of the processor – be displayed and / or played back or redirected to other game elements by means of the game board. The game element may be connected physically by means of a connector 19, or logically by means of

an identifier to said game board. The game element may receive said information by means of communication device 16 connected to a processor 17. The communication device may receive or send information by means of a network, e.g. a local area network (LAN), a wide area network (WAN), or any combination thereof, e.g. the Internet, an intranet, an extranet. The network may comprise wired and wireless communication links. Said network may be a general solution known from the prior art, or it may be dedicated to an optimized communication between said game element and the game board. Said communication device may communicate by means of said connector.

Said processor is arranged to receive inputs from the display, if it has touch sensitive fields on its front, the input device and the communication device. The processor is further arranged to generate display data to the display, sound or music data to the speaker, signal to said transmitter(s) and other data to the communication device.

The game board may basically be designed by using of the same kind of electronic components as the game element. However, the game board may have one or more sensors instead of transmitters, because the game board - by means of its sensors – currently needs to keep track of where said game element(s) is / are located. This / these is/ are located by its/ their transmitter(s) which may identify it / them to the game board.

Fig. 2 shows a physical implementation of the game element. In a preferred embodiment, the display area, i.e. the game element's display is large compared to the physical layout of the game element. More layouts will be shown in the next Figure. Since it may be possible to place or connect the game element to a game board, the physical layout of said connector may be of interest to the player, e.g. in the case that the player desires connection compatibility with his particular game board. Said connector may also be a non-electrical connector, as it may be used to configure, re-configure or place the game element to a various number of game boards used in various games, such as Monopoly, Trivial Pursuit, Chess, Ludo, Parcheesi, Nine Men's Morris, Draughts, Checkers, Settlers, strategy games, Roulet, etc. Other games with a corresponding game board may be card games, such as Bridge, Whist, Black Jack, Poker, etc.

Fig. 3 shows various configurations of a game element. Also here, in a preferred embodiment of the invention, the display area, i.e. the game element's display may be large compared to the shown layouts of the various, alternative physical game elements. Reference numeral 20 denotes a game element in a hexagonal layout, alternatively, reference numeral 21 denotes the game element in a rectangular layout, and alternatively, reference numeral 22 denotes the game element in a triangular layout. It may further be possible to

have the displays configured in other shapes, such as circular, elliptical, etc. The shape of the game element may then reflect the particular use of it as an element in a game, e.g. a dice may have a cube shape of its housing, a game element used as a playing card may be rectangular, etc.

Furthermore, each game element may also have a stand, a base plate or a foot with means for physical contact or connection to a like game element or to place it on a game board. In said stand, base plate or foot, said connector - denoted by reference numeral 19 - may be an integral part. The connector may further be connectable to predetermined locations on the game board.

Fig. 4 shows various placements of various configurations of game elements on a game board. The game board is denoted by reference numeral 40. Reference numeral 44 denotes a game element in a hexagonal layout placed on said game board, alternatively or additionally, reference numeral 43 denotes three game elements used as game elements, all in rectangular layouts placed on the game board, and reference numeral 42 denotes another game element as a triangular display, also placed on the game board.
Correspondingly, the shape of the game elements may then reflect an initial use of them in said games.

However – as an example – when a pawn, i.e. the initial status of a game piece (game element) in a chess game, is promoted to a queen – the physical appearance of this particular game element will of course remain the same – but, as an advantage of the invention, the figure of a queen may then be displayed (on the display of this game element) rather than the figure of a peasant.

Generally, according to a preferred embodiment of the invention, one or more game elements may be placed on or located relative to said game board. Typically, said game elements will be placed close to or on the playing field of said game board. However, the game elements may also be located in the hands of players who play a particular game.

The game board itself may be a playing field for different games. Examples of games could be Monopoly, Trivial Pursuit, Chess, Ludo, Parcheesi, Nine Men's Morris, Draughts, Checkers, Snakes And Ladders, Settlers, strategy games, Roulet, etc. Other games with a corresponding game board may be card games, such as Bridge, Whist, Black Jack, Poker, etc.

The game board - as discussed the playing field – will typically define and comprise an area in which the game takes place. In a preferred embodiment of the invention, said playing field may have means for presenting information to the user or users.

On said game board one or more sensors, denoted by reference numerals 41, may be positioned in order to locate the position or positioned of one or more game elements placed on, held in a hand, placed close to, distant to or on the playing field of said game board. Said one or more sensor is / are then used - by receiving signal(s) sent from one or more transmitters positioned on or integrated in the game element - to determine the location of the game elements, i.e. the game elements located relative to the game board. In other words, by means of said sensor(s), the game board may locate said game elements, i.e. said game elements.

It is possible for the game board to supervise the game, check rules, transferring information to game elements reflecting a status of the game and the locations of game elements.

In other words, the game board may determine information dependent on said location and / or game played, said information may represent game content which has to be transferred and subsequently presented on said game elements.

Fig. 5 shows a method of playing a game by means of a game element.

In step 90, the method in accordance with a preferred embodiment of the invention is started. Variables, flags, buffers, etc., keeping track of locations, game content, information item(s), identifying signal(s), etc, corresponding to the status of game elements placed relative to a game board and corresponding to the status of a given game are set to default values. When the method is started a second time, only corrupted variables, flags, buffers, etc, are reset to default values.

Throughout the application - when the wording "presentation", "present" or the like is used – it is intended to designate that game content may be displayed on a corresponding display of the game element. And, furthermore - if that game content is suitable for being emitted through a loudspeaker, i.e. when said game content comprises sounds and / or music – game content is also played back. This is possible because said game element may comprise a loudspeaker or a like device.

The wording "game content" is understood to be information, which would normally represent ordinary physical game elements known from the prior art, but which, in accordance with a preferred embodiment of the invention, can be presented by means of a display and / or a loudspeaker. Said information or content may be plain text, pictures, frames, video, word-processor data, spread-sheet data, game figures, game elements, text or picture messages, and combinations thereof.

In step 100, the game element may be placed to a first location relative to a game board. This will typically be a player action in that the player may desire that the game element's location should affect the outcome of the game. E.g. in a chess game, a pawn placed or (re)positioned in a new location, i.e. a move forward towards an opponent, the pawn may be promoted to any officer by means of chess rules, e.g. queen, whereby the player has enhanced his chances of winning the chess-game.

Said first location may be relative, i.e. outside, within, above, on or on the edge of the game board. The game element may be held in the hand of the player in order for him to reposition it or obtain information presented on it.

It may be the case that this step is repeated for placements of more game elements. The steps to follow may then apply correspondingly.

In step 200, the game board may determine the first location of the game element. Step 200 constitutes a generalization of steps 300, 400 and 500.

In step 300, at least one transmitter - located on the game element - may transmit a corresponding signal identifying the game element. As discussed in Figure 1, one or more transmitters may be positioned on or integrated in the game element. These transmitters may then be used to inform the game board that said game element is placed relative to it. Said signal may be used to identify the game element, its type, kind, layout and/or shape.

In step 400, at least one sensor may receive at least one identifying signal. Said sensor or sensors may be located on the game board. As discussed in the foregoing step and in Figure 1, the identifying signal or signals is or are transmitted from one or more transmitters located on the game element.

In step 500, the game board may determine the first location of the game element based on at least one identifying signal. In other words, the game board may in this step - based one or more the identifying signals – determine specific X, Y, Z coordinates of the game element. Said coordinates may be defined relative to a fixed point on the game board and measured by it by means of received identifying signal(s).

In other words, in steps 300, 400 and 500, the game board may determine the location of the game element placed or held relative to itself.

In step 600, the game board may determine a first information item representing game content. Said first information item may be dependent on said determined location and a first game being played on the game board.

E.g. in a chess game, a king being checked by one or more of the opponent's game elements, may have "king checked" or a like message generated for a subsequent presentation on the king's game element. In other words, said message reflects the location of the king and the status of the game played.

Said first information item may comprise plain text, pictures, frames, video, word-processor data, spreadsheet data, game figures, game elements, text or picture messages, or any combination thereof as it may reflect the game played and its status.

In step 700, the game board may transfer said first information item to the game element. Said first information item may be transferred to the connector of the game element. Said first information item may have been transferred and is then received by means of a network - as general solution known from the prior art - or it may be received by means of an optimized communication dedicated to the game element.

In step 800, the game element may receive and then present said first information item on the game element. As previously discussed, the wording present is understood to be "display" and / or "play back" content, i.e. the first information item, on the game element.

Continuing the example of the promoted pawn, the physical shape of this particular game element will of course be kept but, as an advantage of the invention, a figure of the queen - in this step - may then be displayed on said former game element of the pawn.

By means of the above-mentioned steps, the following examples will show further use of the invention:

Example 1:

Every time a player throws the dice (which may be small cube-shaped game elements), another game element must then be moved on the game board with the number of steps indicated by the dice.

Example 2:

Peter and Monica, i.e. two users or players, play a game of Monopoly. Corresponding game elements are used to represent the player's token during the game each showing a picture of Peter and Monica. After 3 rounds, Peter ends up in jail. The picture of Peter on his game element changes and now shows Peter dressed up in a prisoner's suit and behind bars.

Example 3:

Continuing example 2: in the following round, Monica reaches a chance spot on the game board. The message relating to the chance spot may then appear on one of Monica's game elements. The message says that Monica is allowed to move past the game's starting point and as a result will receive 2000 dollars.

In step 900, the game element may be removed from its first location. As a consequence, the game board and the game element(s) will in conjunction – when performing the above-mentioned steps – detect that said game element is no longer participating in the particular game.

E.g. when a pawn – in a game of chess - is taken by an opponent player, it should therefore not be a game element any longer in that game. It is thus considered removed from the particular chess game; game content "pawn out of game" or the like may then be presented on the game board and / or on said removed game element.

If that this particular pawn is still, wrongly positioned on the game board, the game board may - by means of above-mentioned steps – generate a message to the dead pawn: "please remove this game piece". Said message may be spoken and or displayed on the pawn's game element.

In step 1000, the game element may now be placed in a second location. This location may be different from the previous first location relative to the game board. This will typically be a player's action in that the player may desire that the new second location of the game element should again affect the outcome of the game.

It may be the case that this step is repeated for more repositioned game elements, repositioned by the one or more players using the game board.

In step 1100, the game board or one of the game elements may receive a second information item representing a second game being played. It may be the case that the user or users of the game board with given game elements playing a given game now wish to play another game. In this step he / they may then enter a new game by means of an input on the game board or one of the game elements.

When the new game and possibly a new initial location of the game element(s) are known, game information may subsequently again be transferred from the game board to the game element or elements for a subsequent presentation as already discussed in the above-mentioned steps.

Correspondingly, game information for the new, second game may then be presented on the game board.

Usually, the method will start all over again as long as the game board and at least one game element are powered. Otherwise, the method may terminate in step 1200; however, when the game board is powered again, etc., the method may proceed from step 100.

Said game board may be any electronic device capable of detecting said location or locations of a game element, and capable of subsequently transferring a corresponding game content dedicated to a game element.

Correspondingly, the game element is connectable, attachable or can be placed to or on the game board or may be held and placed relative to the game board and communicate with it, and furthermore, the game element is capable of receiving, displaying and/or playing back content from the game board.

A computer-readable medium may be a magnetic tape, an optical disc, a digital video disk (DVD), a compact disc (CD recordable or CD writeable), a mini-disc, a hard disk, a floppy disk, a smart card, a PCMCIA card, etc.